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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/785,598	02/16/2001	Thomas Thaler	BCO-001A	4386

7590 08/25/2010

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EXAMINER	
ABELSON, RONALD B	

ART UNIT	PAPER NUMBER
2476	

MAIL DATE	DELIVERY MODE
08/25/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/785,598	THALER ET AL.	
	Examiner	Art Unit	
	RONALD ABELSON	2476	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25,27,28 and 40-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *25,27,28 and 40-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *2/16/01* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 25, 28, 30, 32, 33, 37 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strong (US 5,530,846) in view of Lian (EP 0946003).

Regarding claims 25 and 37, Strong teaches generating a network-wide time signal using a reference time generator; distributing the network-wide time signal over the network to the plurality of nodes;

measuring a signal propagation delay of the network-wide time signal between the reference time generator and each of the plurality of nodes;

generating, at each respective node, a local synchronization signal using the measured signal propagation

delay of the respective node, as required by a respective application; and

synchronizing the timing of each node for the respective application using the local synchronization signal (master node provides timing information used at any ring node to synchronize local clock by transferring measure of propagation delay, col. 2 lines 17-22).

Although Strong teaches maintaining a network-wide time signal as a network cycle master signal at a designated cycle master node of the plurality of nodes of the network maintaining a local cycle master signal at each respective node of the network and measuring signal propagation delay (master node provides timing information used at any ring node to synchronize local clock by transferring measure of propagation delay, col. 2 lines 17-22), the reference is silent on determining the signal propagation delay at each respective node from the difference between the respective local cycle master signal and the network cycle master signal.

Lian teaches determining the signal propagation delay at a respective node from the difference between the respective

signals and the nodes (determining propagation delay changes, assumed propagation delays equal, value of phase difference between two clocks of the two units derived and initial values of propagation delays calculated using approximations, further approximations of propagation delays are derived, abstract).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of Strong by determining the signal propagation delay at each respective node from the difference between the respective local cycle master signal and the network cycle master signal, as suggested by Lian. This modification would benefit the system by providing a proven, reliable method for determining the signal propagation delay.

Regarding claims 28 and 40, although Strong teaches a network cycle master signal and local cycle master cycle, the reference is storing on storing the signals in a register. However, it would have been obvious to store the signals in a device in order for the value of the signal to be read at a later time.

Regarding claim 30, the local synchronization signal has an associated frequency (Strong: col. 2 lines 10-12).

Regarding claim 32, performing delay compensation at each respective node (master node provides timing information used at any ring node to synchronize local clock by transferring measure of propagation delay, col. 2 lines 17-22).

Regarding claim 33, the delay compensation is performed by adding an extra signal delay to the local synchronization signal (master node provides timing information used at any ring node to synchronize local clock by transferring measure of propagation delay, col. 2 lines 17-22).

3. Claim 29 rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Strong and Lian as applied to claim 25 above, and further in view of applicant's admitted prior art 'AAPA'.

The combination is silent on a house synchronization signal.

AAPA teaches a house synchronization signal (pg. 1 line 21).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination by

transmitting a house synchronization signal for the network-wide time signal, as suggested by AAPA. This modification would benefit the system since house synchronization signals guarantee synchronicity of all connected devices (AAPA: pg. 1 line 21).

4. Claims 31 and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Strong and Lian as applied to claim 25 above, and further in view of Aiello (US 6,275,544).

Although Lian teaches measuring the phase, the combination is silent on phase locking the local synchronization signal to a predetermined cycle value.

Aiello teaches phase locking the local synchronization signal to a predetermined cycle value (phase-locked loop synchronizes local clock, col. 4 lines 40-43).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination by phase locking the local synchronization signal to a predetermined cycle value, as suggested by Aiello. This modification would benefit the system by ensuring the phase is calculated accurately.

Regarding claim 42, in addition to the limitations addressed above, Strong teaches each node having means adapted to perform local timing control (master node provides timing information used at any ring node to synchronize local clock by transferring measure of propagation delay, col. 2 lines 17-22).

The combination is silent on a plurality of applications using timing functions under local timing control, with each node of the plurality of nodes associated with at least one application

wherein each node of the plurality of nodes of the network has means adapted to synchronized the at least one application associated with the respective node using the local synchronization signal.

Aiello teaches a plurality of applications using timing functions under local timing control, with each node of the plurality of nodes associated with at least one application

wherein each node of the plurality of nodes of the network has means adapted to be synchronized to the at least one application associated with the respective node using the local

synchronization signal (fig. 2 boxes 22, 28, col. 2 lines 54-67: the applications in fig. 2 are boxes 22, 28).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination by a plurality of applications using timing functions under local timing control, with each node of the plurality of nodes associated with at least one application; wherein each node of the plurality of nodes of the network has means adapted to synchronized the at least one application associated with the respective node using the local synchronization signal, as shown by Aiello. This modification would benefit the system by providing a method for synchronizing applications running at the local nodes to their local clocks.

Regarding claim 43, each node has means adapted to track signal propagation delay using the network-time signal, and has means adapted to convert the network-time signal by generating the local synchronization signal using the signal propagation delay of the respective node, to maintain a respective local cycle master signal in a respective local cycle master register, and to determine a respective signal propagation delay at each respective node from the difference between the respective local

cycle master signal and the network cycle master signal (Lian: determining propagation delay changes, assumed propagation delays equal, value of phase difference between two clocks of the two units derived and initial values of propagation delays calculated using approximations, further approximations of propagation delays are derived, abstract).

Although Strong teaches a network cycle master signal and local cycle master cycle, the reference is storing on storing the signals in a register. However, it would have been obvious to store the signals in a device in order for the value of the signal to be read at a later time.

5. Claims 34 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Strong and Lian as applied to claims 25 and 37 above, and further in view of Domon (US 6,678,781).

The combination is silent on IEEE 1394 compliance.

Domon teaches the benefits of IEEE 1394 compliance (col. 1 lines 14-18).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination by

making the nodes IEEE 1394 compliant, as suggested by Domon. This modification can be performed according to the teachings of adhering to IEEE 1394 standards. This modification would benefit the system since IEEE 1394 provides for real-time transport of digital video (Domon: col. 1 lines 14-18).

6. Claim 35 rejected under 35 U.S.C. 103(a) as being unpatentable over the combination Strong and Lian as applied to claim 25 above, and further in view of Weidemann "Application Critical Parameters for Rubidium Standards".

The combination Aiello is silent on generating the network wide time signal includes the step of utilizing a rubidium reference signal generator.

Weidemann teaches the further recited limitation above at e.g., in the summary on page 87.

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination by generating the network wide time signal includes the step of utilizing a rubidium reference signal generator, as shown by Weidemann. This modification can be performed according to the teachings of Weidemann. This modification would benefit the

system to provide highly reliable clocking source.

7. Claim 36 rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Strong and Lian as applied to claim 25 above, and further in view of Kim (US 6,370,138).

The combination Aiello is silent on the step of generating the network-wide time signal includes the step of: utilizing a global positioning system (GPS)-based reference signal generator.

Kim teaches the step of generating the network-wide time signal includes the step of: utilizing a global positioning system (GPS)-based reference signal generator (GPS, col. 7 lines 3-23).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination by generating the network-wide time signal includes the step of: utilizing a global positioning system (GPS)-based reference signal generator, as shown by Kim. This modification can be performed according to the teachings of Kim. This modification would benefit the system since GPS is a highly accurate positioning system.

8. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Strong, Lian, and Aiello as applied to claim 42 above, and further in view of Domon (US 6,678,781).

The combination is silent on IEEE 1394 compliance.

Domon teaches the benefits of IEEE 1394 compliance (col. 1 lines 14-18).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination by making the nodes IEEE 1394 compliant, as suggested by Domon. This modification can be performed according to the teachings of adhering to IEEE 1394 standards. This modification would benefit the system since IEEE 1394 provides for real-time transport of digital video (Domon: col. 1 lines 14-18).

Response to Arguments

9. Applicant's arguments with respect to the amended independent claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RONALD ABELSON whose telephone number is (571)272-3165. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ronald Abelson
Primary Examiner
Art Unit 2476

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Primary Examiner, Art Unit 2476